

WHAT IS CLAIMED IS:

1. A combinatorial gene expression library, comprising a pool of expression constructs, each expression construct containing one or more cDNA or genomic DNA fragments, wherein the cDNA or genomic DNA fragments in the pool of expression constructs are derived from a plurality of species of donor organisms, and wherein the cDNA or genomic DNA fragments in each expression construct are operably-associated each with one or more regulatory regions that drives expression of genes encoded by the cDNA or genomic DNA fragments in an appropriate host organism.
2. A method for making a combinatorial gene expression library, comprising ligating a DNA vector to one or more cDNA or genomic DNA fragments to generate a library of expression constructs, wherein the cDNA or genomic DNA fragments in the library of expression constructs are obtained from a plurality of species of donor organisms, and wherein genes contained in the cDNA or genomic DNA fragments are operably-associated with their native or exogenous regulatory regions which drive expression of the genes in an appropriate host cell.
3. A method for screening a gene expression library or a compound of interest, comprising:
 - (a) culturing the gene expression library of claim 1; and
 - (b) detecting a signal generated by the reporter regimen; thereby identifying a clone which produces the compound.

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